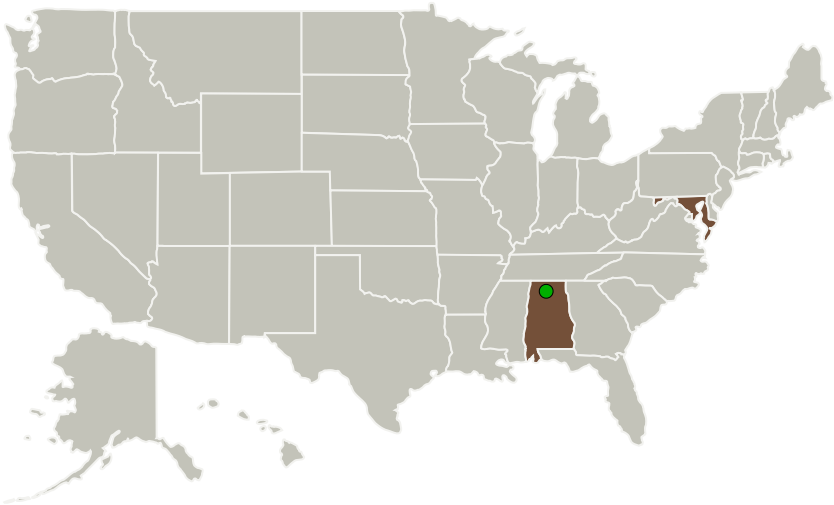
Passive Wireless Temperature Sensors with Enhanced Sensitivity and Range, Phase II

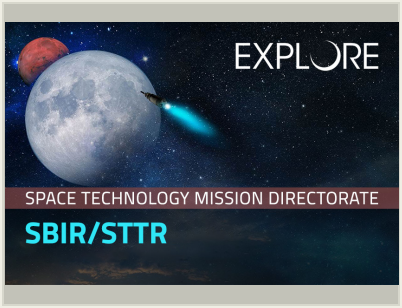
Completed Technology Project (2011 - 2013)

Project Introduction

This proposal describes the development of a wireless multisensor system for NASA application to remote wireless sensing of temperature distributions in composite overwrapped pressure vessels (COPVs) and development flight instrumentation (DFI) for test facilities for large area composite component validation testing. Phase 1 demonstrated ASR&D's ability to produce temperature sensors with sensitivity controlled by device design, and to selectively read any one coded wireless sensor out of a set of up to 32 uniquely identifiable sensors. Phase 2 will further develop these passive wireless sensors for target applications, and will develop a miniaturized wireless electronic reader capable of autonomously reading up to 32 sensors operating simultaneously within its field of view. ASR&D has teamed with Metis Design Corporation for the Phase 2 electronics integration, miniaturization, and DAQ hardware development. After the Phase 1 program, the sensors and selected portions of the wireless reader are TRL 2-3. At the completion of the Phase 2 effort ASR&D will deliver to NASA a complete wireless multisensor temperature measurement system suitable for field testing (TRL 4+), including one wireless reader and 32 individually identifiable temperature sensors.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
SenSanna Incorporated (formerly Applied Sensor Research & Development)	Lead Organization	Industry Women-Owned Small Business (WOSB), Veteran-Owned Small Business (VOSB)	Arnold, Maryland
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations	
Alabama	Maryland

Project Transitions

June 2011: Project Start

May 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139206)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

SenSanna Incorporated (formerly Applied Sensor Research & Development)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Leland P Solie

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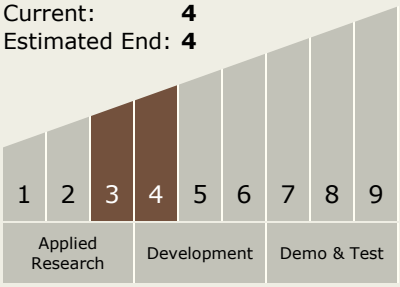
Completed Technology Project (2011 - 2013)

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.4 Environment Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System